

AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows:

1. (Currently Amended) An irradiation device comprising:

 at least one reactor for the treatment of fluids with light radiation, the reactor
 comprising a tube or a vessel made of transparent material and surrounded by air, and
 having a fluid inlet, a fluid outlet, and at least one opening or window adapted for the
 transmission of light from an external light source into the tube; and
 a light source external to said tube, said light source including a light generator
 and a reflector to reflect light generated by said light generator onto said window at
 angles of a predefined angle range.
2. (Currently Amended) The irradiation device reactor of claim 1, wherein the tube or the vessel is made of quartz.
3. (Currently Amended) The irradiation device reactor of claim 1, wherein the tube or the vessel is positioned inside a protective sleeve with an air gap in between.
4. (Currently Amended) The irradiation device reactor of claim 1, wherein the window is provided with an optical filter to for avoiding block light of a predetermined unwanted wavelengths wavelength spectrum from entering the reactor.
5. (Currently Amended) The irradiation device reactor of claim 1, further comprising one or more light detectors to detect light energy in light communication with at one or more predetermined regions at of an outer side of the tube or the vessel, and in data communication with a controller of a disinfection system making use of the reactor to control one or more disinfection-related parameters of said disinfection device based on the detected light energy.

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6. (Currently Amended) The irradiation device reactor of claim 1, wherein said reactor further comprising comprises at least one additional tube or vessel made of transparent material wherein the transparent tubes are of descending diameters and are positioned one inside another with gaps in between, about the same longitudinal axis, forming a multi core reactor.
7. (Currently Amended) The irradiation device reactor of claim [[6]] 1, wherein said predefined angle range are related to a critical angle for obtaining total internal reflection of at least part of said light within said fluid further comprising at least one additional tube made of transparent material wherein the transparent tubes or vessels are of descending diameters and are positioned one inside another with gaps in between, about the same longitudinal axis, forming a multi core reactor.
8. (Currently Amended) The irradiation device reactor of claim 1, wherein the fluid outlet is formed as a filling nozzle in a liquid filling apparatus.
9. (Currently Amended) The irradiation device reactor of claim 1, wherein the fluid outlet is formed as a water launcher in a washing apparatus.
10. (Currently Amended) ~~Fluid disinfection device, comprising at least one reactor as defined by any of the previous claims, and at least one light radiation source aligned into the reactor.~~ The irradiation device of claim 1, wherein said window has a surface area equal to or bigger than an inner diameter of said tube between said inlet and said outlet.
11. (Currently Amended) ~~Fluid disinfection device according to claim 10, further comprising light detectors in light communication with predetermined regions of a~~

~~transparent wall of a tube inside the reactor, and in data communication with a controller of the disinfection device.~~ The irradiation device of claim 1, wherein said window is located such that said light enters said tube or vessel at a direction corresponding to a flow direction of said fluid between said inlet and said outlet.

12. (Currently Amended) In a domestic water supply system, the irradiation fluid disinfection device according to ~~claim 10~~ claim 1, further comprising a faucet adapted to be activated by a domestic user, in liquid communication with a fluid outlet of the reactor.

13. (Currently Amended) In an air conditioning or circulating system, the irradiation fluid disinfection device according to ~~claim 10~~ claim 1, ~~with its~~ wherein at least one of said fluid inlet or and said fluid outlet is in air communication with at least one air blower or air pump.

14. (Currently Amended) The irradiation device of claim 1, Fluid disinfection device according to claim 10, wherein the at least one light ~~radiation source~~ generator is selected from the group consisting of a microwave excited electrodeless UV plasma lamp, a UV laser, a pulsed UV lamp, and a mercury lamp.

15. (Currently Amended) Method for irradiating fluids, the method comprising:
accommodating fluid in a reactor, the walls of which are made of a transparent material, and the surrounding outside the wall is of a refractive index lower than that of the wall;
generating light radiation externally to said reactor; and
reflecting said light radiation into said reactor irradiating the accommodated fluid
~~with light radiation aligned into the fluid in such an angle, such that light is~~
transmitted through the fluid, and such that a major portion of light which leaves the

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fluid through its boundaries with the transparent wall is reflected back into the fluid or remains to shine along the transparent wall.

16. (Original) Method for irradiating fluids according to claim 15, wherein the fluid is in continuous flow during the irradiating process.
17. (Original) Method for irradiating fluids according to claim 15, wherein the transparent material is quartz.
18. (Original) Method for irradiating fluids according to claim 15, wherein the accommodated fluid is water or other liquid transparent to certain wave lengths of the light radiation.
19. (Currently Amended) Method for irradiating fluids according to ~~claim 15~~ claim 18, ~~wherein the accommodated fluid is water or other liquid transparent to certain wave lengths of the light radiation, the method is further comprising launching the water from the outlet to form a free flow water jet with light radiation locked in total internal reflection within the jet.~~
20. (Original) Method for irradiating fluids according to claim 19, further comprising washing a surface or a container with the free flow jet.
21. (Original) Method for irradiating fluids according to claim 19, further comprising filling a bottle or a container with the free flow jet.
22. (Currently Amended) Method for irradiating fluids according to ~~claim 19~~ claim 21, ~~further comprising filling a container with the free flow jet, and simultaneously evacuating the air rejected from the container by the liquid being filled, and suctioning it into a second~~

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reactor ~~according to the present invention~~, or into a second flow channel in the same reactor in which the liquid is irradiated, for irradiating the air.

23. (Original) Method for irradiating fluids according to claim 19, further comprising dissolving into the liquid oxidizing agents, air, or gas, in order to enhance the disinfection process.

24. (Currently Amended) Method for irradiating fluids according to claim 21, further comprising ~~a promotion step of dry disinfection of~~ dry-disinfecting the containers to be filled by means of quartz rod inserted into the container opening and irradiating it with UV emitted from the rod.